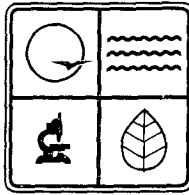


STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI AIR CONSERVATION COMMISSION



FILE COPY

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **01 2 00 6 - 0 1 4** Project Number: **2005-09-098**

Owner: **Cerro Copper Casting Company**

Owner's Address: **1500 Industrial Drive, Mexico MO 65265**

Installation Name: **Cerro Copper Casting Company**

Installation Address: **1500 Industrial Drive, Mexico MO 65265**

Location Information: **Audrain County, S32 & S33, T51N, R9W**

Application for Authority to Construct was made for:

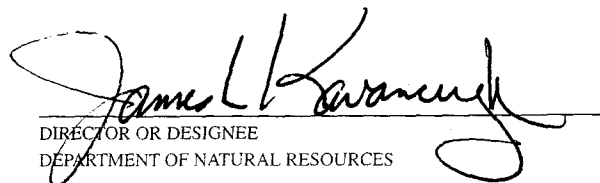
The installation of one billet saw (EP-21) which will de-bottleneck the vertical melt furnace (EP-01) and the hold furnace (EP-03) by increasing the gas pressure from 18.15 MMBtu/hr to 30 MMBtu/hr, and replace a 150 gallon diesel tank with a 500 gallon diesel tank (EP-07). This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

☐ Standard Conditions (on reverse) are applicable to this permit.

☒ Standard Conditions (on reverse) and Special Conditions (listed as attachments starting on page 2) are applicable to this permit.

JAN 25 2006

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional Office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed Special Conditions as provided in RSMo 643.075. If you choose to appeal, the Air Pollution Control Program must receive your written declaration within 30 days of receipt of this permit.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Department of Natural Resources has established the Outreach and Assistance Center to help in completing future applications or fielding complaints about the permitting process. You are invited to contact them at 1-800-361-4827 or (573) 526-6627, or in writing addressed to Outreach and Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention Construction Permit Unit.

Page No.	2
Permit No.	
Project No.	2005-09-098

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Cerro Copper Casting Company
Audrain County, S32 & S33, T51N, R9W

1. Superseding Condition
 - A. The conditions of this permit supersede all special conditions found in the previously issued construction permit (Permit Number 0894-027) from the Air Pollution Control Program.
 - B. The conditions of this permit supersede special conditions 1 Emission Limitations - Carbon Monoxide (CO) and special condition 3 Record Keeping - Carbon Monoxide (CO) found in the previously issued construction permit (Permit Number 0298-010) from the Air Pollution Control Program.
2. Emission Limitation
 - A. Cerro Copper Casting Company shall emit less than 250 tons of carbon monoxide (CO) in any consecutive 12-month period from the entire installation.
 - B. Cerro Copper Casting Company shall maintain the monthly and the sum of the most recent consecutive twelve (12) month records of CO emissions emitted into the atmosphere from the entire installation. Attachment A or equivalent forms approved by the Air Pollution Control Program (APCP) shall be used for record keeping. Cerro Copper Casting Company shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - C. Cerro Copper Casting Company shall report to the APCP's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition No. 1(B) indicate that the source exceeds the limitations in Special Condition No. 1(A).

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2005-09-098
Installation ID Number: 007- 0047
Permit Number:

Cerro Copper Casting Company
1500 Industrial Drive
Mexico, MO 65265

Complete: November 01, 2005
Reviewed: November 22, 2005

Parent Company:
Cerro Copper Casting Company
1500 Industrial Drive
Mexico, MO 65265

Audrain County, S32 & S33, T51N, R9W

REVIEW SUMMARY

- Cerro Copper Casting Company has applied for authority to install one Billet Saw (EP-21) which will allow the de-bottlenecking of the vertical melt furnace (EP-01) and the hold furnace (EP-03) by increasing the gas pressure from 18.15 MMBtu/hr to 30 MMBtu/hr, and to replace a 150 gallon diesel tank with a 500 gallon diesel Tank (EP-07).
- Hazardous air pollutants (HAPs) are emitted from this facility. The HAPs of concern for this facility and their respective chemical abstract service (CAS) numbers are lead (7439-92-1), selenium compounds (7782-49-2), arsenic (7440-38-2), chromium (7440-47-3), nickel (7440-02-0) and beryllium (7440-41-7).
- None of the New Source Performance Standards (NSPS) apply to this facility.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to the proposed equipment. None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- This review was conducted under Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. This is an existing facility with potential emissions greater than major levels for CO, but a permit condition limits actual CO emissions to minor levels.
- This facility is located in Audrain County, an attainment area for all criteria pollutants.
- This facility is not on the List of Named Installations (10 CSR 10-6.020(3)(B), Table 2).

- Ambient air modeling is required because HAPs are emitted from this installation.
- No air pollution control equipment is being used in association with the new equipment, but control of the flow of CO at the burner tip is being used to control the CO emissions from the equipment in this permit.
- Construction permit 0298-010 did not break out the individual HAPs and compare them to the applicable risk assessment levels (RALs). Therefore, screening and ambient air quality modeling was performed to determine the ambient impact of the HAP pollutants lead, arsenic, cadmium, chromium, nickel, beryllium, and selenium.
- Emissions testing is not required for the equipment.
- A revision to the Part 70 Operating Permit application is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Cerro Copper Casting Company produces copper billets from a raw material feed consisting mostly of copper cathodes, scrap copper tubing from other facilities and copper chips from the billet sizing operation in Mexico Missouri. Cerro Copper Casting Company is classified as a secondary copper casting facility (SIC 3366) and is not a secondary copper smelting facility. Since the materials being charged to the furnace at Cerro Copper Casting Company do not require any smelting or refining prior to being cast into billets, this is not a secondary copper smelting facility. Therefore Cerro Copper Casting Company is not a named Installation as designated by 10 CSR 10-6.020(3)(B), Table 2. Cerro Copper Company is not a major source for any pollutant. They have a 250 ton installation wide limit on Carbon Monoxide (CO). They do not have a limit on lead or on any HAPs. The raw material copper is usually of purity greater than 99.9%. The other impurities in the raw material charged to the furnace originate from residual drawing oils and dirt on the tubing.

The facility uses a natural gas or propane fired vertical melting furnace to melt the high purity copper cathodes and tubing. The raw material copper is batch charged into the top of the furnace and is melted as it proceeds downward. The furnace operates in an oxygen lean atmosphere, as excess oxygen will oxidize the copper and reduce the purity of the final product. To achieve an oxygen lean atmosphere, carbon monoxide (CO) is added to the inlet gas stream. For this facility, the inlet CO was originally set at 1.75%. It is now limited by special condition 2.a of permit number 0298-010 to a set point carbon monoxide concentration of 0.75 percent at the burner tip except when condition 2.b applies. Condition 2.b allows for a set point for carbon monoxide concentration of 1.3 percent at the burner tip when casting 8.5 inch billets. This permit is not changing special conditions 2.a or 2.b or authorizing any new or different setting for the burner tip. Any residual oxygen in the copper must be removed by adding phosphorus to the molten copper downstream from the furnace. The copper exits

through a tap hole in the bottom of the furnace and flows through an enclosed launder to an electric holding furnace. The metal is then transferred, within the furnace, to water-cooled molds. After leaving the molds, the copper is then cut, tested, marked and shipped to copper tube-producing mills.

The facility normally operates 24 hours a day, 5 days a week for 50 weeks annually. Normal operations commence around midnight on Monday morning and are continuous until the furnace is shut down Friday evening. The copper not frozen to the sides of the vertical melting furnace upon shutdown is retained in a molten state in the electrical holding furnace. The two days of down time at the end of the week are used to check the system and perform routine maintenance. The final two weeks during the regular calendar year are used to conduct maintenance on the furnace and copper molds.

The following permits have been issued to Cerro Copper Casting Company from the Air Pollution Control Program.

Table 1: Permits Issued to Cerro Copper Casting Company (007-0047).

Permit Number	Description
0894-027	Sec 5 & 6 De minimis and Minor copper melting and casting
OP1999-030	Part 70 Operating Permit Issued project number EX0070047007
0298-010	Sec 5 & 6 De minimis and Minor copper melting and casting

PROJECT DESCRIPTION

Cerro Copper Casting Company will be de-bottlenecking the casting process. Currently the casting process is restricted by the rate at which the billet saw is able cut the cast copper billet strands. By adding a new billet saw, the casting rate can be increased. Cerro Copper Casting Company is proposing no physical change to the vertical melt furnace, launders, hold furnace, casting blocks or the existing billet saw. They are proposing to increase the gas pressure to the vertical melt furnace's burners. This increased fuel pressure will increase the combined fire rate from 18.15 MMBTU/hr to 30 MMBTU/hr. The additional burner pressure and the additional saw will allow the casting rate to be increased from approximately 13.05 to 18.75 tons per hour. The changes they are proposing do not trigger major source thresholds for any pollutant. They have a 250 ton installation wide limit on Carbon Monoxide (CO). The annual CO emissions will increase due to this change, but they do not anticipate exceeding the CO limit of 250 tons with the proposed changes.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, section number 1.4 Natural Gas Combustion, 1998, from source tests conducted on September 5 and 6, 1996, September 18, 1996, June 11, 1998 and October 21, 1998. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions*	Existing Actual Emissions (2004 EIQ)	Net Emission Increase	New Installation Conditioned Potential
PM ₁₀	15.0	95.78	30.12	12.08	N/A
SOx	40.0	2.51	1.73	2.22	N/A
NOx	40.0	20.18	12.1	7.70	N/A
VOC	40.0	11.39	6.16	9.49	N/A
CO	100.0	250	170.81	91.88	250
Lead	10	0.03	0.02	0.026	N/A
HAPs	10.0/25.0	2.20	0.0	0.284	N/A

N/A = Not Applicable; N/D = Not Determined

*Existing potential emissions from permit number 0298-010 with project number 007-0047-008.

Per the instructions established for the Emission Inventory Questionnaire (EIQ), those HAPs that are either VOCs or Particulate Matter less than 10 microns (PM₁₀) can be reported as VOC or as PM₁₀. The HAPs calculated for this project are counted as VOC or PM₁₀ on the EIQ. The average actual emissions from the 2003 to 2004 EIQ's are used to subtract from the potential emission of the existing equipment and the potential emission of the new equipment to determine the net emission increase. This plant will be de-bottlenecked by the changes authorized in this permit. The existing equipment includes the vertical copper melting furnace (EP-01) and holding furnace (EP-03). The new billet saw (EP-21) and the new 500 gallon diesel tank are the new equipment. Indoor settlement is being used as a control device for PM₁₀ emissions for billet grinding with a value of 50 percent. The emission factors used on EP-01 are based on source tests. A control efficiency of 40 percent for control of CO at burner tip has been used on emission point EP-01. In this application, CO emissions are being controlled at the burner tip and is taken into account since the emission factor is based on actual test data.

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. The net emission increase of emissions of criteria pollutants are below de minimis levels.

APPLICABLE REQUIREMENTS

Cerro Copper Casting Company shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required April 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of the HAP pollutants lead, arsenic, cadmium, chromium, nickel, beryllium, and selenium. Ambient air quality modeling was also done in Construction permit 0298-010, but that permit did not break out the individual HAPs and compare them to the applicable Risk Assessment Levels (RAL). It also used a factor of 10 on the RAL numbers as a buffer to determine compliance.

Table 3: Risk Assessment Levels (RALs)

Pollutant	8 hour Concentration ($\mu\text{g}/\text{m}^3$)	8 hour RAL Concentration ($\mu\text{g}/\text{m}^3$)	24 hour Concentration ($\mu\text{g}/\text{m}^3$)	24 hour RAL Concentration ($\mu\text{g}/\text{m}^3$)
Lead	0.00618	2	N/A	N/A
Beryllium	0.00000959	0.00036	N/A	N/A
Arsenic	0.00333	0.0267	N/A	N/A
Cadmium	0.00007364	0.009	N/A	N/A
Chromium	N/A	N/A	0.0006144	0.0008
Nickel	0.0001568	1.33	N/A	N/A
Selenium	N/A	N/A	0.0015072	0.540

Modeling was performed on the installation using the Screen3 modeling program for the assorted hazardous air pollutants (HAPs). RALs are listed in Table 3. The method used in permit 08298-010 used a factor of 10 on these numbers as a “buffer” to determine compliance. Air Pollution Control Program altered this method to no longer include the factor of 10 on 8-hr RALs and 24-hr RALs, but this method is allowed on

annual RALs that appear on a select list of HAP chemicals. Beryllium compounds (CAS# 20-03-1), arsenic compounds (CAS # 20-01-9), cadmium compounds (CAS# 20-04-2), chromium compounds (CAS# 20-06-4), and nickel compounds (CAS# 20-14-4) are on the list, but annual RALs have not been established. 8-hr RALs or 24 hr RALs are the allowable concentrations and are used in Table 3. Selenium compounds (CAS# 20-16-6) are not on the list and are not allowed a factor of 10 buffer for the annual RAL. However, no annual RAL has been established for selenium compounds. The chemical abstract service numbers listed for the above compounds include the chemical abstract numbers from this site. Table 3 shows that Cerro Copper Casting Company is in compliance with the risk assessment levels for the HAPs listed in the time frames and concentrations established.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Timothy Paul Hines
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated 09/15/2005 received 09/26/2005, designating Cerro Copper Casting Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated October, 19, 2005.

Attachment A - MONTHLY CARBON MONOXIDE WORKSHEET

Cerro Copper Casting Company
Audrain County, S32 & S33, T51N, R9W
Project Number: 2005-09-098
Installation ID Number: 007- 0047
Permit Number:

This sheet covers the period from _____ to _____.
(month, year) (month, year)

MONTHLY CARBON MONOXIDE WORKSHEET

Column A	Column B	Column C	Column D	Column E	Column F	Column G
Date (month/year)	Type of Copper Billet Produced	Amount of Copper Charged to Furnace (tons)	Carbon Monoxide Emission Factor (lb/ton) (Note 1)	Carbon Monoxide Emissions (tons) (Note 2)	Monthly Carbon Monoxide Emissions (tons) (Note 3)	Aggregate Carbon Monoxide Emissions (tons) (Note 4)
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
	8.5 inch		5.153			
	12 inch		4.943			
	14 inch		0.92			
Total Carbon Monoxide Emissions (tons) (Note 5)						

Note 1: 12-inch billet emission factor is the average emission factor from the Source test conducted on September 18, 1997. 8.5-inch billet emission factor was derived from data collected at the Source Tests conducted on September 5 and 6, 1996, and on September 18, 1997. 14- inch billet emission factor was determined from source test data on June 11, 1998.

Note 2: Column E = (Column C) X (Column D) X (0.0005 lb/ton)

Note 3: Column F = Sum of 14-inch, 12-inch and 8.5-inch billet emissions for that month.

Note 4: Column G = Running total of CO emissions from most recent consecutive 12-month period.

Note 5: Total CO Emissions not to exceed 250 tons in any consecutive 12-month period.